In the Claims:

1. (Original) A method of communicating with a plurality of application instances executing on a cluster of data processing systems having a plurality of communication protocol stacks associated therewith utilizing a single Internet Protocol (IP) address, the method comprising the steps of:

establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address;

defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks;

distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack;

notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define the candidate target communication protocol stack as a current actual target stack;

receiving a request to establish a connection to the single IP address and the port of the single IP address;

establishing a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack; and

routing communications for the connection to the port of the IP address received by the routing communication protocol stack based on the routing table.

2. (Original) A method according to Claim 1, wherein the step of defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises the

step of defining all of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

3. (Original) A method according to Claim 1, wherein the step of defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises the step of defining enumerated ones of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

4. (Original) A method according to Claim 1, wherein the step of establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address comprises the step of establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address for routing communications associated with at least one specified port associated with the IP address;

wherein the step of defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises the step of defining ones of the plurality of communication protocol stacks which are associated with the at least one specified port associated with the IP address as candidate target communication protocol stacks;

wherein the step of defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises the step of distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the at least one port of the single IP address as candidate target communication protocol stacks and an identification of the routing communication protocol stack; and

wherein the step of notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define

the candidate target communication protocol stack as a current actual target stack comprises the step of notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to the at least one port of the single IP address so as to define a current actual target stack.

5. (Original) A method according to Claim 4, wherein the at least one port comprises a plurality of ports identified in a port list associated with the single IP address.

6. (Original) A method according to Claim 4, wherein the at least one port comprises all ports associated with the single IP address.

7. (Original) A method according to Claim 1, further comprising:

notifying the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address; and

removing the routing table entry corresponding to the candidate target communication protocol stack so as to remove the routing path associated with the IP address, the port and the candidate target communication protocol stack.

8. (Original) A method according to Claim 7, wherein the step of notifying the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address comprises the step of sending a termination message through a cross coupling facility of the cluster of data processing systems.

9. A method according to Claim 1, wherein the steps of establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address and defining ones of the plurality of communication protocol stacks which are associated with the single IP address

comprise the step of incorporating a VIPADISTribute statement in a VIPADynamic definition block associated with the first communication protocol stack, wherein the VIPADISTribute statement defines an IP address as a dynamic routable virtual IP address (VIPA), identifies ports associated with the VIPA which are routable, and identifies communication protocols stacks associated with the VIPA.

10. (Original) A method according to Claim 9, wherein the step of distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack comprises broadcasting a list including the definitions of the VIPADISTRibute statement.

11. (Original) A method according to Claim 1, further comprising the steps of:

notifying the routing communication protocol stack that a connection utilizing the single IP address and the port of the singe IP address has terminated; and

removing the routing table entry corresponding to the connection to the current actual target stack so as to remove the routing path associated with the IP address, the port and the current actual target stack.

12. (Original) A method according to Claim 1, wherein the step of establishing a routing table entry is preceded by the step of selecting a current actual target stack so as to provide a selected communication protocol stack associated with the connection request; and

wherein the step of establishing a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack comprises the step of establishing a routing table entry corresponding to the selected communication protocol stack associated with the connection request to provide a routing path associated with the IP address and the

port from the routing communication protocol stack to the selected communication protocol stack.

13-19. (Canceled)

20. (Original) A system for communicating with a plurality of application instances executing on a cluster of data processing systems having a plurality of communication protocol stacks associated therewith utilizing a single Internet Protocol (IP) address, comprising:

means for establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address;

means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks;

means for distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack;

means for notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define the candidate target communication protocol stack as a current actual target stack;

means for receiving a request to establish a connection to the single IP address and the port of the single IP address;

means for establishing a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack; and

means for routing communications for the connection to the port of the IP address received by the routing communication protocol stack based on the routing table.

21. (Original) A system according to Claim 20, wherein the means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises means for defining all of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

22. (Original) A system according to Claim 20, wherein the means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises means for defining enumerated ones of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

23. (Original) A system according to Claim 20, wherein the means for establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address comprises means for establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address for routing communications associated with at least one specified port associated with the IP address;

wherein the means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises means for defining ones of the plurality of communication protocol stacks which are associated with the at least one specified port associated with the IP address as candidate target communication protocol stacks;

wherein the means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises means for distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the at least one port of the single IP address as candidate target

communication protocol stacks and an identification of the routing communication protocol stack; and

wherein the means for notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define the candidate target communication protocol stack as a current actual target stack comprises means for notifying the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to the at least one port of the single IP address so as to define a current actual target stack.

24. (Original) A system according to Claim 23, wherein the at least one port comprises a plurality of ports identified in a port list associated with the single IP address.

25. (Original) A system according to Claim 23, wherein the at least one port comprises all ports associated with the single IP address.

26. (Original) A system according to Claim 20, further comprising:

means for notifying the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address; and

means for removing the routing table entry corresponding to the candidate target communication protocol stack so as to remove the routing path associated with the IP address, the port and the candidate target communication protocol stack.

27. (Original) A system according to Claim 26, wherein the means for notifying the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address comprises means for

sending a termination message through a cross coupling facility of the cluster of data processing systems.

28. (Original) A system according to Claim 20, wherein the means for establishing a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address and the means for defining ones of the plurality of communication protocol stacks which are associated with the single IP address comprise means for incorporating a VIPADISTribute statement in a VIPADynamic definition block associated with the first communication protocol stack, wherein the VIPADISTribute statement defines an IP address as a dynamic routable virtual IP address (VIPA), identifies ports associated with the VIPA which are routable, and identifies communication protocols stacks associated with the VIPA.

29. (Original) A system according to Claim 28, wherein the means for distributing among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack comprises means for broadcasting a list including the definitions of the VIPADISTRibute statement.

30. (Original) A system according to Claim 20, further comprising:

means for notifying the routing communication protocol stack that a connection utilizing the single IP address and the port of the singe IP address has terminated; and

means for removing the routing table entry corresponding to the connection to the current actual target stack so as to remove the routing path associated with the IP address, the port and the current actual target stack.

31. (Original) A system according to Claim 20, further comprising means for selecting a current actual target stack so as to provide a selected communication protocol stack associated with the connection request; and

wherein the means for establishing a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack comprises means for establishing a routing table entry corresponding to the selected communication protocol stack associated with the connection request to provide a routing path associated with the IP address and the port from the routing communication protocol stack to the selected communication protocol stack.

32. (Original) A computer program product for communicating with a plurality of application instances executing on a cluster of data processing systems having a plurality of communication protocol stacks associated therewith utilizing a single Internet Protocol (IP) address, comprising:

a computer readable storage medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which establishes a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address;

computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks;

computer readable program code which distributes among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack;

computer readable program code which notifies the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define the candidate target communication protocol stack as a current actual target stack;

computer readable program code which receives a request to establish a connection to the single IP address and the port of the single IP address;

computer readable program code which establishes a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack; and

computer readable program code which routes communications for the connection to the port of the IP address received by the routing communication protocol stack based on the routing table.

33. (Original) A computer program product according to Claim 32, wherein the computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises computer readable program code which defines all of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

34. (Original) A computer program product according to Claim 32, wherein the computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises computer readable program code which defines enumerated ones of the plurality of communication protocol stacks of the cluster of data processing systems as candidate target communication protocol stacks.

35. (Original) A computer program product according to Claim 32, wherein the computer readable program code which establishes a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address comprises computer readable program code which establishes a first of the plurality of communication protocol stacks as a routing

communication protocol stack associated with the single IP address for routing communications associated with at least one specified port associated with the IP address;

wherein the computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the at least one specified port associated with the IP address as candidate target communication protocol stacks;

wherein the computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address as candidate target communication protocol stacks comprises computer readable program code which distributes among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the at least one port of the single IP address as candidate target communication protocol stacks and an identification of the routing communication protocol stack; and

wherein the computer readable program code which notifies the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to a port of the single IP address so as to define the candidate target communication protocol stack as a current actual target stack comprises computer readable program code which notifies the routing communication protocol stack when an instance of the plurality of application instances associated with a candidate target communication protocol stack listens to the at least one port of the single IP address so as to define a current actual target stack.

36. (Original) A computer program product according to Claim 35, wherein the at least one port comprises a plurality of ports identified in a port list associated with the single IP address.

37. (Original) A computer program product according to Claim 35, wherein the at least one port comprises all ports associated with the single IP address.

38. (Original) A computer program product according to Claim 32, further comprising:

computer readable program code which notifies the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address; and

computer readable program code which removes the routing table entry corresponding to the candidate target communication protocol stack so as to remove the routing path associated with the IP address, the port and the candidate target communication protocol stack.

39. (Original) A computer program product according to Claim 38, wherein the computer readable program code which notifies the routing communication protocol stack that the instance of the plurality of application instances associated with the candidate target communication protocol stack has terminated listening to the port of the single IP address comprises computer readable program code which sends a termination message through a cross coupling facility of the cluster of data processing systems.

40. (Original) A computer program product according to Claim 32, wherein the computer readable program code which establishes a first of the plurality of communication protocol stacks as a routing communication protocol stack associated with the single IP address and the computer readable program code which defines ones of the plurality of communication protocol stacks which are associated with the single IP address comprise means for incorporating a VIPADISTribute statement in a VIPADynamic definition block associated with the first communication protocol stack, wherein the VIPADISTribute statement defines an IP address as a dynamic routable virtual IP address (VIPA), identifies ports associated with the VIPA which are routable, and identifies communication protocols stacks associated with the VIPA.

41. (Original) A computer program product according to Claim 40, wherein the computer readable program code which distributes among the plurality of communication protocol stacks an identification of protocol stacks which are associated with the single IP address and an identification of the routing communication protocol stack comprises computer readable program code which broadcasts a list including the definitions of the VIPADISTRibute statement.

42. (Original) A computer program product according to Claim 32, further comprising:

computer readable program code which notifies the routing communication protocol stack that a connection utilizing the single IP address and the port of the singe IP address has terminated; and

computer readable program code which removes the routing table entry corresponding to the connection to the current actual target stack so as to remove the routing path associated with the IP address, the port and the current actual target stack.

43. (Original) A computer program product according to Claim 32, further comprising computer readable program code which selects a current actual target stack so as to provide a selected communication protocol stack associated with the connection request; and

wherein the computer readable program code which establishes a routing table entry corresponding to the current actual target stack responsive to receiving a request to establish a connection to the single IP address and the port so as to define a routing path associated with the IP address and the port from the routing communication protocol stack to the current actual target stack comprises computer readable program code which establishes a routing table entry corresponding to the selected communication protocol stack associated with the connection request to provide a routing path associated with the IP address and the port from the routing communication protocol stack to the selected communication protocol stack.

In the Drawings

The Notice of Allowance dated March 19, 2004 states that Figures 1-3 should be designated as Prior Art. (Notice of Allowance, page 2). In response, Applicants submit herewith corrected drawings in which figures 1-3 are designated as Prior Art.

Enclosure: Replacement Sheets (3)